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A PRELIMINARY ANNOTATED LIST OF THE BATRACHIA OF TEXAS.

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The writer has been actively engaged for a number of years in working out the distribution of the Reptilia and Batrachia in Texas, with a view of publishing a check-list of the species inhabiting the State. This paper presents a list of the batrachians that have been recorded from within the State limits, and is now published in the hope that others may be able to supply records for any species that may be here omitted. Several of the salamanders inhabiting southern Louisiana undoubtedly occur in the eastern part of Texas, but to judge from the published records, very little work has been done in that section of the State. Several unrecorded species may also enter the northeastern section from Arkansas. I have personally collected material in the central, southern and western portions of the State, in the following counties: McLennan, Falls and Burnet (central), Refugio and Bee (southern) and Midland, Jeff Davis and Brewster (western). I have collected a few species in other counties, but those above mentioned are the only ones in which I have made extended research.

Hon. J. D. Mitchell has furnished me with specimens and notes from Victoria County. Mr. Julius Hurter of the St. Louis Academy of Science has kindly written me out a list of the batrachians collected by him on his several trips into the State. Messrs. C. H. T. Townsend and Charles M. Barber have furnished me with material from El Paso.

The principal works I have referred to for localities are as follows:

S. F. Baird: "Reptilia (and Batrachia) of the Mexican boundary survey" (1).

E. D. Cope: "Check-list of North American Reptiles and Batrachians" (2); "The Zoological position of Texas" (3); "The Batrachia of North America" (4).

M. C. Dickerson: "The Frog Book" (5).

H. C. Yarrow: "Check-list of North American Reptiles and Batrachians" (6).

Various authors: Scattered papers in magazines and the transactions of scientific societies.

Where no name follows a locality, the record is my own.

Batrachia Caudata.

1. **Siren lacertina** L.

GREAT SIREN; MUD EEL.

The siren has an extensive range in eastern and southern Texas. It undoubtedly occurs in all the counties bordering on the Gulf of Mexico and is found as far west in the Lower Rio Grande Valley as the Devil's River. How far into the interior its range extends, I can not say; but I am positive, from descriptions of an animal given me by fishermen, that it occurs as far west as Tyler, Smith County.

Upton, Maverick County (Albert Turpe⁴).

San Diego, Duval County (William Taylor⁴).

Victoria and Calhoun counties (Mitchell).

Refugio County.

2. **Typhlomolge rathbuni** Stejn.

TEXAS BLIND SALAMANDER.

Type and only locality, subterranean waters at San Marcos, Hays County. In a living specimen of this curious animal, the gills and branchiae were light red in color.

3. **Ambystoma opacum** Gravenhorst.

MARBLED SALAMANDER.

Northern and north-central Texas. This species is apparently rare. Cope mentions specimens from one locality, and my records include two others.

Wichita County, near the Red River (Jacob Boll³).

Paris, Lamar County (Hurter).

Hewitt, McLennan County.

4. **Ambystoma punctatum** Linn.

SPOTTED SALAMANDER.

The only locality I can find for this species is rather indefinite. It is based on a specimen in the U. S. National Museum collected by Col. J. D. Graham "between Indianola and El Paso"!⁴

5. **Ambystoma tigrinum** Green.

TIGER SALAMANDER.

The southern, west-central and western portions of the State. Cope referred a specimen from El Paso, in the National collection, to the western subspecies, *A. tigrinum californiense* Gray. Another one from San Elizario, El Paso County, was recorded under the head of typical *tigrinum*.

The only record I can find for any locality in southern Texas is that of Baird and Girard in Proc. Acad. Nat. Sci., VI., Oct., 1852, p. 173. (Description of the type specimen of *Ambystoma prosperina* B. & G., from the Salado River, one of the tributaries of the Neuces, in the southern part of the State.)

In addition to the above localities, I have seen specimens from Lampasas and Burnet counties (west-central) and Garza (western).

6. **Ambystoma microstomum** Cope.

SMALL-MOUTHED SALAMANDER.

This species is quite common in some sections of the State. The following are the published records, with the addition of my own:

Northern: Paris, Lamar County (Hurter); Dallas, Dallas County (Cope³).

North-central: McLennan and Falls counties.

West-central: Burnet County.

Southern and southwestern: Houston, Harris County (Cope³); Victoria County (Mitchell), Refugio County.

7. **Ambystoma texanus** Matthes.

TEXAN SALAMANDER.

Central and southern Texas. I have not seen the original description of Matthes' *Salamandra texana*, and have no record of the type locality. Baird's specimens from the "Lower Rio Grande" may refer to the series of eleven specimens collected at San Antonio by Col. J. D. Graham⁴ (U. S. Nat. Mus. collection). McLennan County, one specimen.

8. **Plethodon glutinosus** Green.

VISCID SALAMANDER.

This species doubtless has a wide range in the State, but published records of its capture are exceedingly rare.

New Braunfels, Comal County (Capt. Van Vliet⁴).

Bexar County. (Cope³, "It is found on the first plateau as far as Helotes.")

McLennan County.

9. **Diemyctylus viridescens** Raf.

AMERICAN NEWT.

Mr. Mitchell informs me that this species occurs in Victoria County (specimens identified by Dr. Stejneger).

A specimen of the form *miniatus* in the U. S. National Museum collection, collected by Dr. B. F. Shumard, is labeled "Brazos River, Texas."

10. *Diemyctylus viridescens meridionalis* Cope.

TEXAS NEWT.

The central and southern portions of the State.

San Diego, Duval County (William Taylor⁴).

San Antonio (H. P. Attwater) and tributaries of the Medina River (G. W. Marnock³) in Bexar County.

Victoria County (Mitchell).

McLennan and Falls counties.

*Batrachia Salientia.*11. *Bufo punctatus* B. & G.

SPOTTED TOAD.

This toad is widely distributed in Texas, but does not occur in the eastern and southeastern portions of the State.

Dallas (Dickerson⁵).

McLennan and Burnet counties.

Fort Concho, Tom Green County and San Antonio (Cope³).

El Paso, El Paso County (Townsend and Barber).

12. *Bufo debilis* Girard.

GREEN TOAD.

The following records of the occurrence of this species were published by Cope:

Upper Wichita River (Isaac³), "West of Neuces" (G. W. Marnock³) and Duval County (William Taylor⁴).

I have personally collected it in the following counties: McLennan, Burnet, Refugio and Bee; and have received specimens from Bexar.

13. *Bufo compactilis* Wieg.

SPADE-FOOT TOAD.

This interesting batrachian ranges from the upper Wichita River in northern Texas to the Rio Grande in the south, and from the southeastern coast counties westward to the Pecos region.

Northern: Wichita River (Boll³).

Central: McLennan and Burnet counties.

Western: Ringgold barracks (A. Schott⁴), Pecos River (Pope⁴).

Southern and southeastern: Indianola (Capt. Pope⁴), Brownsville (Capt. Van Vliet⁴), Victoria County (Mitchell), Refugio County.

14. *Bufo cognatus* Say.

SAY'S TOAD.

I can find no published records of specific localities for this species. I have examples from El Paso, collected by Mr. Charles M. Barber. It is probably common in some portions of the great Pan Handle section of the State, but this district, from a herpetological standpoint, is almost unknown.

15. **Bufo lentiginosus americanus** Le Conte.

AMERICAN TOAD.

Abundant in all sections of the State, excepting the extreme western part. I have personally collected it as far south as Refugio County and as far west as Burnet.

16. **Bufo lentiginosus woodhousei** B. & G.

WOODHOUSE'S TOAD.

I have collected this subspecies in Jeff Davis and Brewster counties, and Mr. C. M. Barber has sent me specimens from El Paso. The specimen from Fort Worth, figured on plate xxv of Miss Mary C. Dickerson's "Frog Book," is not my conception of *woodhousei* as represented in the Baylor University collection by specimens from Utah, New Mexico and El Paso. Large overgrown specimens of a dark colored form of *americanus* are exceedingly common in central Texas, in districts below five hundred feet elevation. The variability of the central Texas toads of this type is exceedingly great. One form is very like *cognatus* in many respects.*

17. **Bufo valliceps** Wieg.

WIEGMANN'S TOAD.

This toad is more or less common in all the counties bordering on the Gulf, from Louisiana to the mouth of the Rio Grande. In the interior I have collected it as far north as Bosque County and west to Llano. My specimens are from the following counties: Victoria, Refugio and Bee (southern); Bosque, McLennan, Burnet and Llano (central).

18. **Engystoma carolinense** Holbrook.

NARROW-MOUTHED TOAD.

The range of this interesting batrachian is extensive, covering fully two-thirds of the State. The only sections from which I have no records are the Pan Handle and the western mountain district.

Northern: Paris (Hurter), Dallas (Cope³).

Central: McLennan, Falls, Burnet and Robertson counties.

West-central: Fort Concho (Cope³).

Southern and southeastern: Victoria County (Mitchell), Hitchcock, Galveston County (Dickerson⁵), Houston and San Antonio (Cope³), Refugio County.

19. **Engystoma texense** Girard.

TEXAS NARROW-MOUTHED TOAD.

Type specimen from Rio Seco, Texas (Capt. Pope⁵). Miss Dickerson⁵ mentions specimens from San Diego, Duval County (Taylor) and Brownsville, Cameron County. All of these localities are in the southern part of the State. I have some doubts as to the validity of this form as a distinct

* *Bufo aduncus* Cope (Bull. U. S. Nat. Mus., 1889, No. 31, p. 457), based on a single specimen collected at Gainesville, Cooke County, is here omitted. This specimen, formerly U. S. Nat. Mus. No. 14,100, has been lost. Cope's description indicates a very peculiar variation from the *americanus* group, if not a distinct species.

species. In McLennan County I find two types of *Engystoma*, but have always considered them as mere variations of the same thing. A smooth, dull colored form is fully as common as the brown, tubercular skinned variety. The examination of a large series of specimens from the southern part of the State may lead me to adopt Miss Dickerson's views, so in deference to the excellent discrimination she has otherwise shown in her work, I here include *Engystoma texense* in my list.

20. **Hypopachus cuneus** Cope.

TAYLOR'S TOAD.

This species has been recorded from two localities in southern Texas, *i. e.*, San Diego (Taylor⁴) and Brownsville (Dickerson⁵).

21. **Acris gryllus crepitans** Baird.

WESTERN CRICKET FROG.

I have collected or observed specimens of this species in every county I have visited. Fort Worth is my northernmost record, and I have obtained specimens as far south as Refugio and as far west as Boracho, El Paso County.

22. **Chorophilus ornatus** Holbrook.

ORNATE CHORUS FROG.

Cope³ has recorded specimens of this species from Dallas (Boll) and Helotes (Marnock) under the name of *C. ocularis* Daudin.

23. **Chorophilus occidentalis** B. & G.

WESTERN CHORUS FROG.

Reported from two localities in the northern part of the State, *i. e.*, Dallas and the upper Wichita River (Boll³).

24. **Chorophilus triseriatus** Wied.

STRIPED TREE FROG.

With the exception of the extreme western part, this species appears to be distributed throughout the State. The spotted variety from Indianola, described by Baird as *Holoecetes clarkii*, is also abundant in central Texas, occurring in the same localities as the typical form. The following are recorded localities:

Indianola (Baird¹), Helotes, Fort Concho, Dallas and Galveston (Cope⁴). My localities are Victoria and Falls counties, Waco, Burnet, and Refugio.

25. **Hyla squirella** Bose.

SOUTHERN TREE FROG.

This interesting tree frog occurs in southern Texas, but its range is evidently not very extensive. I have specimens in my collection from Victoria and San Antonio.

26. **Hyla cinerea** Daudin.

GREEN TREE FROG.

This species has a wide range and has been collected in the following localities:

Indianola (Baird¹). Types of *H. semifasciata*).

Victoria (Mitchell).

New Braunfels, San Antonio, Dallas, Helotes (Cope⁴).

McLennan, Bosque, Falls, Burnet and Refugio counties.

27. **Hyla arenicolor** Cope.

Hyla copii Boulenger, from El Paso, described in the Annals and Magazine of Natural History for 1887, p. 53, is referred to this species by Cope.*

28. **Hyla versicolor chrysozelis** Cope.

WESTERN TREE FROG.

Cope first described this form as a variety of *Hyla femoralis* Lat. It has a wide distribution in Texas but does not appear to be common in any locality.

Cope⁴ records specimens of *Hyla versicolor* from Gainsville (Ragsdale) and New Braunfels (Lindheimer) and specimens of *Hyla femoralis* Lat. var *chrysozelis*³ from Dallas. All of these specimens should probably be referred to *chrysozelis*. Waco specimens of this variety are indistinguishable from specimens from Hot Springs, Arkansas, identified by Dr. Stejneger. Mr. C. S. Brimley of Raleigh, N. C., writes me that he has received specimens of this type (*versicolor*) from San Antonio.

29. **Smilisca baudinii** Dum. & Bibr.

VAN VLIET'S TREE FROG.

Baird described specimens of this tree frog from Brownsville under the name of *Hyla vanrietti*. It is a rare species and occurs only in the extreme southern portion of the State. In addition to the specimens from Brownsville mentioned by Baird, Cope³ records it from Helotes and I have collected it near Refugio.

30. **Lithodytes latrans** Cope.

ROBBER FROG; BARKING FROG.

Described from specimens collected by Marnock at Helotes, Bexar County. I have collected one specimen at Waco. This curious frog is probably widely distributed, but on account of its peculiar habits is rarely seen. In Burnet and Brewster counties I frequently heard a peculiar barking noise which I was satisfied was the voice of a frog. I was told by the natives that this noise was made by the "bull" lizard (*Crotaphytus*), but I knew this to be untrue as I had captured dozens of these lizards and I had never known them to emit the slightest sound.

31. **Syrhopus marnochii** Cope.

MARNOCK'S FROG.

Helotes, Bexar County, is the type and only locality, so far as is now known.

* Cope⁴ mentions a specimen of *Hyla regilla* B. & G. from Ringgold barracks as being in the U. S. National Museum. No reference to this specimen is made by Frederick Cleveland Test in his paper, "Variations of the tree frog *Hyla regilla*" (Proc. U. S. Nat. Mus., Vol. 21) although he lists the entire series in the National collection. *Hyla regilla* is not likely to occur in Texas, so Cope's record may have been based on a specimen wrongly labelled or on an example of some other species of *Hyla*.

32. **Scaphiopus holbrookii** Harlan.

SOLITARY SPADEFOOT.

On June 24, 1904, I collected a specimen of this species near Refugio, Refugio County. This specimen is now in the collection of Baylor University and is probably the first to be recorded from the State.

33. **Scaphiopus couchii** B. & G.

COUCH'S SPADEFOOT.

This is the common spadefoot of central, southern and western Texas. I have found it very abundant during favorable seasons in McLennan, Burnet, Bee and Refugio counties. Mr. C. M. Barber sent me specimens collected at El Paso, with the information that it was quite common in that locality. Cope³ records it from Atascosa and Bexar counties and Miss Dickerson⁵ from Brownsville.

34. **Scaphiopus hammondii** Baird.

HAMMOND'S SPADEFOOT.

Reported from Helotes by Cope³. I have specimens from El Paso, collected by Mr. C. M. Barber.

35. **Scaphiopus hammondii bombifrons** Cope.

PLAIN'S SPADEFOOT.

U. S. Nat. Mus. No. 3703, from the Llano Estacado, Texas, Capt. John Pope, collector, was referred to this form by Prof. Cope.

36. **Rana catesbiana** Shaw.

BULL FROG.

The bull frog is common in eastern, central and southern Texas, but does not occur in the western part of the State. J. D. Mitchell reports it from Victoria, J. J. Carroll from Polk County. I have personally collected specimens in Falls, McLennan, Bexar, Robertson, Burnet, Smith and Refugio counties.

37. **Rana areolata areolata** B. & G.

TEXAS GOPIHER FROG.

This species has been collected at Indianola (Baird¹) and Hitchcock (Dickerson⁵). These localities are in the southeastern part of the State, in the coast region. *Rana areolata* must be exceedingly rare as the two localities mentioned are the only ones of which I can find any record.

38. **Rana pipiens** Schreber.

LEOPARD FROG.

39. **Rana sphenoccephala** Cope.

SOUTHERN LEOPARD FROG.

The literature relating to these two species (or varieties?) is in such an unsatisfactory state that at the present time I am unwilling to attempt

to define the range of either one. Leopard frogs are found all over the State but it is possible in only a few instances to determine to which form the published records refer. I have collected specimens at Refugio and Burnet that I can refer with certainty to *sphenocephala*, but these collected at Waco all seem to be typical *pipiens*. If the two forms are distinct species, they probably occur together through the greater part of their Texas range.

Specimens collected in the mountains of Jeff Davis and Brewster counties are too young for satisfactory determination, but adult leopard frogs from El Paso are near to *Rana pipiens austriicola* Cope, if not that subspecies.